

AVIATION

The Oldest American Aeronautical Magazine

MARCH 14, 1927

Issued Weekly

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One of the Curtiss Carrier Pigeon Mail Planes of the N.A.T.

VOLUME
XXII

SPECIAL FEATURES

NUMBER
11

A BRIGHT OUTLOOK
CURTISS BUILDS NEW NAVY FIGHTER
ROHRBACH METAL AIRCRAFT CONSTRUCTION

GARDNER PUBLISHING CO., INC.
HIGHLAND, N. Y.
250 W. 57TH ST., NEW YORK

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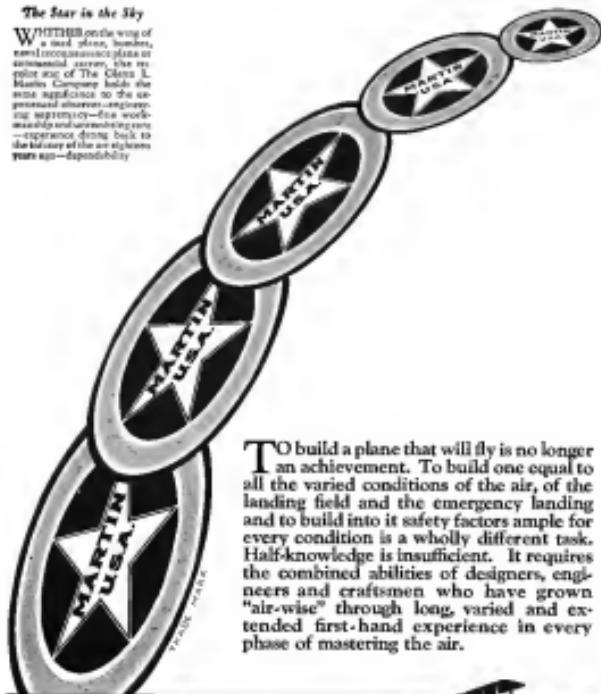
Automobile Department
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GOOD  **YEAR**
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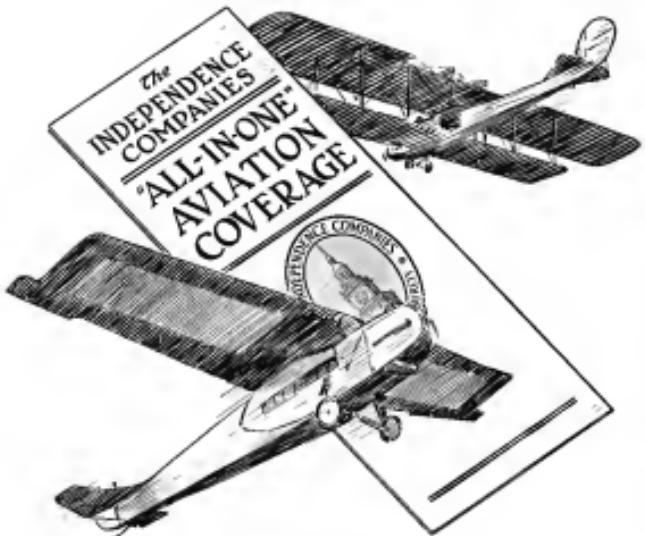
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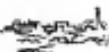


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More than 3,800 passengers were carried, 2000 square miles of territory were mapped, 95 students were taught to fly.

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DURING the fiscal year 1926, in the U.S. Navy alone, over 25,000 hours -- 2,750,000 miles -- of flying was done in Vought planes.

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And it does not include the hours flown by Vought planes in the U.S. Army Air Corps, the Cuban Air Service, and the Air Services of several South American Countries.

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LONG ISLAND CITY, NEW YORK

Vought US-1 Navy
Division fighter
painted with Wright
Whirlwind engine,
assigned to the 1st
Squadron, Colorado
and Arizona.

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Index to Contents

NEWS ARTICLES AND ITEMS

Curtiss Was Training Plane Competition	510
E. P. Warner on Extended Trip	510
New York Chicago Mail Again Advertised	510
Pacific Air Transport Passenger Service	510
Pilot Shows Houston Hurricane Trophy	511
Organization of Airways Division	512
Pictures to Operate New York-Atlantic Service	512
Curtiss Builds Navy Fighter	514
U. S. Policy on Safety Aircraft	515
Pan-American Flight Program	519
Billing Programs for Mail Service	520
De Parade Flight Progress	522
Trans Air Flights for Alaska	523
Air Experts Show Interest	524
Mac. Best Named for Budget Control	525
Ryan Air Lines, Inc. Reorganizing	529
The Northwest Airways	530
Driggs Aircraft Corp. Formed	532

FEATURES AND DEPARTMENTS

Editorials	509
Postpone State Air Legislation	510
A Bright Outlook for 1927	511
Reinforced Metal Aircraft Construction	519
Pictures in the News	524-525
The Folder Universal Sequence	526
Airship Ventures	527
Europe—Aeronautical News Notes	528
Sale Signs	528
Airports and Airways	529
Publishers' News Letter	530

ADVERTISING INDEX

Advertisers Index	541
WHERE TO GET	541-542
ADVERTISING SERVICE DIRECTORIES	541-542
CLASSIFIED ADVERTISING	542

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With the Editor

In the production of modern service aircraft there is, with little doubt, no sphere which demands more skillful engineering work than the design of single-seat fighter or pursuit planes. In the first place, not only is the over-workshop of performance pre-ordained, but all of the many operations necessary in planning, manufacturing, and certifying out the various functions of the machine have to be performed by one man. Furthermore such a plane is of necessity extremely small, so that space is at a premium and compactness is essential. Yet, as the other hand, everything must be ready as possible. If the failure is to be a dislodged plane for service with the fleet at sea, these apparently complicated problems are by no means simplified by the fact that, together with a high performance, the machine must be serviced with ease, ready for reparation the instant an error is detected at the deck of the aircraft carrier.

Several of our leading aircraft manufacturers are now engaged in producing machines to meet these and many other demands. How one prominent manufacturer has satisfied the requirements with marked success is described in the issue of *Aviation*



*That's why
More Pilots fly them!*

THE Fairey Seafar Monoplane flies up to its name in every respect. In its glass enclosed cabin passengers and a pilot enjoy comfort, the warmth of an efficient heater, and easy access by three separate doors. In less than two minutes, two men fold the wings so the whole machine passes easily through a twelve foot door. Unusually good vision and high efficiency fit this plane especially for photographic and passenger work.

With the Wright "Whirlwind" 200 H. P. air cooled Engine, the Fairey Seafar Monoplane

carries pilot, four passengers, and fuel for five hours flying at a cruising speed of 100 miles per hour and attains a top speed above 130 miles per hour when called upon. An adjustable wing flap feature increases the climb and ceiling, and cuts down the landing speed and roll to a remarkable degree.

The twelve most important designs in commercial aircraft built during 1923-25 were powered with Wright "Whirlwind" engines.

Send for Bulletin No. 8

WRIGHT AERONAUTICAL CORPORATION, Paterson, N. J., U. S. A.

WRIGHT
Whirlwind
A INTEGRAL AERONAUTICAL
engine



VOL. XXII

MARCH 14, 1927

No. 11

The Fuselage As a Gasoline Tank

IT is among the standard positions in airplane design, particularly in the production of military aircraft, to place the gasoline tank in the fuselage ahead of the engine and separating them from the engine. This arrangement, while having many advantages, often creates complications in fitting, and, especially in large machines, is quite a heavy proportion. In the case of the old wood and wire construction of fuselage, and also in the more modern steel tube fuselage, it is difficult to overcome these structural and weight problems. But with the growing tendency to adopt dimensions to an increasing degree, the idea of incorporating the gasoline tank as an integral part of the structural framework is a very feasible one. If, for example, during the monoplane fuselage were constructed, there would seem no reason why the forward section of such a fuselage could not be made gasoline tank and be closed off with bulk-heads to form a secure gasoline tank. Such an arrangement would have many advantages in view of the fact that the monoplane type of construction, while being very light, especially when carried out in aluminum, is at the same time extremely strong and the material would provide ample thickness, and, therefore, strength, for the fuel reservoir. Furthermore, weight would be reduced to a minimum in view of the fact that the gasoline tank, as such, would be contributing materially to the structural rigidity and strength of the entire fuselage.

The question of making the forward section of a monoplane fuselage gasoline tank is, in fact, an already solved problem. Several manufacturers have produced wing engine models of monoplane, in which the housed reservoir for oil and gasoline, and also a mounted gasoline gasoline tank, have been made to give appreciable experience in this type of construction. It is not impossible that the overall expense would be reduced and there is no doubt that, from the maintenance standpoint, the gasoline tank has many advantages, in view of the fact that, presumably, the gasoline tank would last as long as the fuselage and it is difficult to conceive of any other proposition in this regard.

It would be easy to crystallize many other advantages of what may be termed the integral construction of fuselage and gasoline tank. From the safety standpoint, the fuselage tank would probably have advantages over most present-day installations, since, if by chance any leak developed in either the fuselage or the tank-to-tank connection, these would merely spill gasoline out into the open where the leak would be readily detected and there would be no danger of small pools of gasoline collecting on the inside of the fuselage. In the event

of smashing, the oil tank, which would be placed forward of the gasoline tank, would serve as a very effective fire wall. The gasoline and oil lines, which are the parts most likely to become detached, would be outside and, therefore, easily inspected and repaired.

While there might possibly be structural objections to this proposition, a limited precedent in this connection already exists in many forms of fuselage construction, such as the engine nacelle, to which reference has already been made.

Selling Aviation

THE PROBLEMS of merchandising and salesmen stop, as has been pointed out before in these columns, are never out of sight, as a result of experience, in all spheres. Every good salesman, however, picks out and devotes himself to the essential attractions and high spots of his own particular subject and endeavours to bring these before his prospects in the most advantageous and attractive manner.

In the case of aviation, as also in the case of the automobile field, one of the essential activities of a salesman is to arrange the earliest opportunity for a demonstration. It is just here that the problem of the aircraft salesman begins. He cannot, as can the automobile salesman, drive his product to a prospect's door, but must first provide sufficient attraction for his prospectus customer to visit the neighboring flying field. It is not unlikely that this very fact, and, probably, does, provide one of the hardest problems to be overcome in merchandising private-owner flying aircraft. Given the automobile field, an example of this is that customers can be induced to buy a motor vehicle only after he has been given a ride either by a friend or in a demonstration car; that a prospect naturally becomes a prospect by being given a ride so that he, too, would like to own an automobile.

The problem, then, is one of finding a means whereby a salesman may effectively induce his prospect to visit a flying field, and there is probably no other individual agent which can best be applied to overcoming this problem than the portable moving-picture camera. Moving pictures have already been used very extensively in merchandising, but, because of the unqualified and untrained aspects of flying from the sales standpoint, the moving picture camera should play a very important part in the aircraft salesman's activities. In no other way can be placed directly before the eyes of his prospective customer the uses and advantages which can be derived from private airplane ownership. Although it may involve a small investment, it would appear to be one well worth while.

Holland; G. J. Gernhardt, for reliability in flying air transport planes of the K. L. M. airline; Japan, Commandant Aile, for his flight from Tokyo to Paris.

Belgium: Georges Madiot, for his flight from Brussels to the Belgian Congo and return.

Switzerland: Walter Mittelholzer, for establishing world records.

Portugal: Generalissimo José Augusto de Sousa for his flight from Lisbon to Gabon, Africa, and return on one day (1926 m.).

Bolivia: Comandante Mario de Resende for establishing world records.

France: René Pichot, Dauzat, for his flight from Paris to Tokyo.

Denmark: Capt. Børsen, for his flight from Copenhagen to Tidö and return.

New York: Capt. Durand for his courageous mission in piloting an Imperial Airways seaplane from London to Karachi, India.

Organization of Airways Division

The following constitutes the personnel of the new Airways Branch, Dept. of Commerce, engaged in laying out airways, marking routes and maintaining services on the airways:

Fred C. Huntington, Chief Engineer; A. Raymond Riddle, Director; Capt. James E. Doolittle, Director; Capt. Fred J. Marshall, Assistant Airway Director; George C. Miller, Director; Capt. John A. Smith, Director; Capt. Fred J. Doolittle, Director.

Mr. Huntington, chief engineer of the division, was formerly the Capt. of Lighthouses. He was engaged in the Airways Division during his duty in the Bureau of Lighthouses. He is a resident of New York.

Mr. Huntington is a captain in the Army Air Corps Reserve, and was formerly connected with Fessenden Airways, Inc. He was a combat pilot during the war and served in France. He was appointed from Massachusetts.

Mr. Huntington is a graduate of New York University Aeromarine School. He has served with the air mail and with the Army at Mitchel Field, as a junior aeronaut engineer. He was appointed from New York.

Mr. MacKenzie served with the Army Air Service during the war, training at Kelly Field, and later being detailed as test pilot. In 1918 he left the Army and took up experimental work with the Coast and Geodetic Survey. He has been engaged in various surveys, but is now temporarily at headquarters for negotiations of his forthcoming knowledge in connection with airway surveys. He is a resident of the District of Columbia.

Mr. Marshall has served with the Naval aviation forces from 1915 to 1919. From 1923 to 1925 he was engaged with the Air Mail service, being detailed for designing and construction of lighting equipment and related matters. He was appointed from Illinois.

Mr. Miller served from 1927 to 1928 with the Third Marine Corps, all of which time was spent in amphibious duties. After

training at Pensacola, he was sent to France. Returning, he served at various naval air stations, resigning in 1925, at which time he held the rank of master lieutenant. He was appointed from South Dakota.

Mr. Smith entered the naval air service in 1917. He was a senior pilot on the American front. After the war he served as an air mail pilot on the United States route from 1920 to 1926. Since then he has maintained his flying interest, through his status as a naval reserve officer. He was appointed from New York State.

Mr. Sweeney began his flight service with the Army in 1927. He was a senior pilot, and served at various Army fields. He resigned from the Army two years ago, becoming interested in a South American aviation project. He returned recently and was appointed to his present position. He was appointed from New York.

Medical Section Prepares For Examinations

Dr. Louis H. Bassett, head of the Medical Section of the Army Air Corps, has issued a circular letter calling up three sets of standards to be used in the examination of applicants for pilot licenses under the Air Commerce Regulations, put into effect Jan. 3, 1927. The standards are for private, industrial and transport pilots. Supplementary guides for medical examinations, to be designated at oral examination, have also been completed. A system has been outlined for handling the examinations, so that the total physician examination will have complete understanding of the subject.

The Circular is in correspondence with about sixty physicians with the addition of flying experience. A list of equipment necessary for making the examination is being made.

Dr. Bassett has spent thirteen years in the Medical Corps of the Army, of which seven and a half were in the Air Corps. He is a graduate of the School of Aviation Medicine at MacCormack Field and was connected with that unit for six and a half years.

The following constitute the personnel of the Air Corps Medical Division:

Dr. Louis H. Bassett, Chief of Division; Capt. H. S. Tracy, Medical Director; Capt. G. L. Ladd, Superintendent; Capt. J. G. Head, Army Medical Inspector; Capt. W. E. Bassett, Captain; Capt. W. E. Bassett, Captain.

New Canadian Airline

The Western Canada Airways, Ltd. has been incorporated under "The Companies Act" for the purpose of establishing and maintaining basic air regular services of aircraft of all kinds in Canada.

The company is also granted the rights to carry passengers, freight and mail by air to Canada. In aerial advertising, to establish airfields, to make aerial photographic surveys, maps, timber cruises, and to carry on a general aerial transportation business.



With Which Photo
The new version of the Fokker F.III, known as the Fokker F.III. The pilot is totally enclosed and the engine, as usual, on Whittleback.

Pitcairn Aviation to Operate New York-Atlanta Air Mail Service

Philadelphia Manufacturer Awarded Contract,
Expect to Start Operations Early in Summer.

THE CONTRACT for carrying air mail over the newly-announced trans-Appalachian airway between New York and Atlanta was awarded to Pitcairn Aviation, Inc., of Philadelphia, one of the leading aeronautical manufacturing and operating companies of the East. The contract, which covers a period of four years, calls for a regular service every night each way, leaving at 8:30 p.m. and arriving at 6 a.m. the following morning. For all points south of Baltimore that permits, the service is at full business day's time to road delivery between the 8th and 11th of May.

The outcome of this month and the final award of the contract is the result of a long time of effort and preparation, both on the part of progressive southern communities and the aeronautical industry. The South has long been aviation from the beginning, and its rapid industrial growth has sharpened interest in quick transportation and communication with the North. The preparation for holding an air race, offered at Pitcairn Aviation, started the work of Pitcairn by the gathering of experience of foreign airways and the results in American operation. Following this, an aerial survey was made of the complete route from North to South, and a further survey of local conditions affecting the probable volume of mail. The operating company's bid was accompanied by a mass of statistics relating to the company's resources, equipment, and progress, and to the special characteristics of the route to be flown.

Service Provides Valuable Links

Plans are to be made at New York, Philadelphia, Washington, Birmingham, Greenwood, N. C., and Atlanta. A basic service will also be developed throughout the territory. The service links at New York with the line to Boston and with the eastern line, and at Atlanta with the Florida Airways, at present unopened but shortly to be opened.

The Department of Commerce proposes to begin the new service out of the 1928 appropriation, to be available July

1, 1928. Length will include a liaison every ten miles, with the distance of 1,000 miles. The flying fields are to be planned every thirty miles, with probably additional fields in the vicinity. Death of Charlotte, where a new liaison is to be established, is to be avoided.

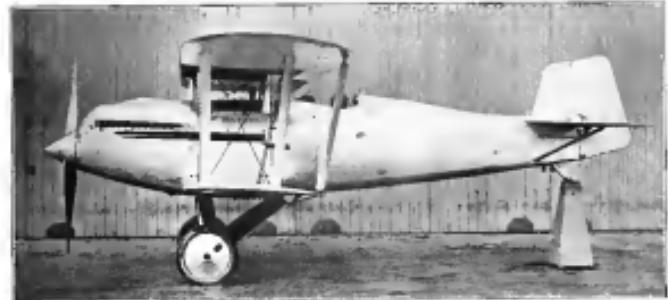
The route is to be flown entirely at night, and length stretches it to an ever very unfavorable service. There are mountains to be crossed, long stretches of forest to be crossed, and scrubby sections where even the forested is broken up by running streams to prevent erosion by rain.

An Experienced Operator

The Pitcairn Company is well equipped with experience, planes, and personnel for the successful operation of the line. Flying operations have been conducted for some time at Hinsdale, Pa., where the company maintains a fleet of six planes, and where over 12,000 passengers were served during 1926. Flying operations were also carried on at Ocean City, N. J., and at the New Jersey Coast. The company held the record for the largest number of passengers carried in over three hundred miles. A flying school is maintained there, which, last year, trained seventy-three students.

The Pitcairn factory is located at Bryn Athyn, Pa. The eight special mail planes to be used on the new route will be built in part at a production plant to be established 250 miles from Bryn Athyn. The planes will be built by Wright-Wrightson, Inc., giving the planes a cruising speed of 125 m.p.h. Additional capacity will be kept in reserve along the route to obviate interruption to the service, and extra pilots will be available at the flying fields along the route.

The line will go into operation as soon as possible, following time for the lighting of the route, the building of the mail planes, and for the completion of the flying fields, several of which are now under way in the route. Operation of the line calls for additional capitalization of the company amounting to nearly half a million dollars.



With Which Photo
The Pitcairn Flyer, experimental biplane, produced by the Pitcairn Aviation Company, successor to the Curtiss 2-1 engine and Curtiss-Road propeller. The Flyer, which is said to be very fast, is powered with the Curtiss engine, known as English as the

Curtiss Builds New Navy Fighter

The F1C-1 Single-Seater Shipboard Fighter With the Air-Cooled Engine is a Striking Example of the Refinements of Modern Aeronautical Engineering.

THE CURTISS F7C-1 is a single-seat shipboard fighter, designed for the U.S. Navy. It is a tractor biplane, powered with the Pratt and Whitney Wasp, and its appearance retains many features of the highly successful Army Curtiss Hawk F-1 and Falcon D-1 machines.

Probably the most interesting feature of the FTL-2 is in the landing gear, incorporating, for the first time in any aircraft, a shock absorber and a shock absorber, wholly within the landing wheel. The shock absorbing mechanism is a two-hubbed two-cylinder air and rubber disc type, enclosing the shock absorber, and is designed so as to be removable. The wheel is of the disc type, with the hydraulically operated brakes being located on the main surfaces of the wheel rim. It is expected that the landing gear will be able to withstand vehicles in making sharp turns, as well as in improving the landing qualities when operating on land. Another new feature is the use, for the first time, of a single disc wheel. One other surprise concerns the landing gear; although the engine has been made so that the landing action of the wheel has been eliminated, the housing of the main wheel is still able to move when the aircraft has landed.

The skylines are also to be equipped as a single float complete for ordinary water operation. The float used is the skylines version of the PVC-I type plate described from usual American practice, having a rather steep nose. The bottom forward of the step. It is expected to show improved take-off, landing and leading characteristics. The machine can be redesigned with other types of fuselage nose, a nose feature

The fuselage of the P.D.L. is a combination of aluminum and steel tubing, with steel fittings, and, as noted above, is designed to take impact and load-shedding loads. By the use of this structure the Corrion Company has been able to produce a fuselage that compares favorably in weight with the riveted Balsac fuselage, in spite of the heavier loads. The riveted Balsac construction presents a great advantage over welded metal in the matter of field repair. With ordinary rivets it is possible to take a broken, however, the Ele. and steel joints, it is possible to remove and replace a damaged member in the field, a task which is impossible with welded steel fuselages. The detectable engine mount uses a solid tubular iron ring and strain the usual Way equipped for welding deck buildings, is, of course, altered.

In order to obtain the maximum possible forward vision which is a prerequisite on a shipboard plane, it was necessary to provide eleven inches of adjustment in the pilot's seat. With the seat in the full-up position, it was found that the pilot would be unable to reach the control pedals. To overcome this difficulty, an ingenious arrangement has been provided whereby the pedals operate on slides, and subsequently move back as the seat is raised. In addition, the seats, say

is independently adjusted to suit the individual pilot, by means of a lead lever. On getting into the cockpit, therefore, the pilot adjusts the pedals to suit himself, and thereafter the pedal distances remain constant no matter what the position of the seat. Round seat belts prevent the pilot from falling out of the seat.

The power plant consists of the Pratt and Whitney Wasp air-cooled engine, of 480 h.p. It drives a Curtiss-Road metal propeller of the new forged type.

every Fighting Tugboat. The controls received by the first two of said

your opinion in the *passenger* cabin, and you will make a new report. This day-night period is an advantage over the ordinary doublets kept in that the maintenance operations can be easily tested at regular intervals. Furthermore, the *passenger* cabin is a quiet place to play in any way, while the silence of a doublet is often so noisy that the airplane is out of service until a new unit is fitted. Additional safety is provided by keeping the bird-poking out of the pilot's cockpit, and by a pressure tip of his oxygenator carried in the engine compartment. The *passenger* cabin is a quiet place, and the bird-poking is considerably less noisy and less intense. An average cockpit in small aircraft, employing a new flock-type of fastener which can be released with a quarter-turn of a screw-driver. Top and bottom coverings on the fastings can be quickly removed for inspection of fuselage structures and materials. All moving parts are provided with silent connections in source parts and gear lubrication. An ingenious hook and eye device for securing main landing struts, the hook and a snap-fit kit, is conveniently located on the side of the fuselage.

The wings are of typical Curius construction, with quarter box bows and ribs. The wing cover used is the C-75, a new serial developed in the Curius wind tunnel. The wing arrangement consists of pronounced forward stagger with certain degrees of sweepback in the upper wing. The mid-cell is split in the upper wing for good vision in the usual flying position. The forward stagger of the lower wing plane decreases the efficiency of the wing to a marked degree. In the PFG-1, perfect vision is attained with no sacrifice of aerodynamic efficiency. Parachutes, and the point of impact, are in phosphor bronze, the aneroid box is mounted in the



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The new system offers significant improvements in value added stability and controllability of loading angles. Single bay loading, with simultaneous end take struts and counterstruts, is now possible.

The steering gear of a test vehicle was which incorporates a steering column and wheel, the rudder momentary necessary in turns. The results are as general similar to the Büssel, with a balanced rudder and non-balanced elevators. Clearly, designed surfaces in the control linkage eliminate any shock in the controls.

It is interesting to note that the construction of the 170-E was started on Dec. 8, and the first flight test was made on Feb. 25—less than twelve weeks later. When one considers the advanced nature of the design and the many entirely new features it incorporates, this is an accomplishment that is little short of remarkable.

While official performance regulation is not available, the previous field tests have demonstrated that the F204

on, with little doubt, the fastest air-speed plane on existence. In the air, the plane displayed the excellent maneuverability qualities which are characteristic of Curtiss fighting planes, and, in addition, demonstrated its remarkable stability and controllability at stallings speeds. The slow landing gear functioned smoothly and the wheel brakes provided excellent ground maneuverability.

At the conclusion of the tests at Mijdel Field the P-51 will be flown to the Naval Air Station at Anacostia for further tests, including night shipboard operation.

The P-51 is one of three new fighters being developed for the Navy, the Boeing Airplane Company and the Curtiss Aeroplane and Motor Company also producing new Navy fighters which will soon be ready for test. That all three planes will represent the very last word in aerodynamic design there is no doubt and the performance figures, when these are made available, will be watched with interest.



¹⁰ See also the *Final Report*, 1992, para 100.

The striking of the longitudinal glider assembly is done in a stationary sequence receiver with a very large thermal thrust. The main part of the receiver consists of the lower surface and the upper surface of the receiver. The receiver is held in place by a hook through the hole left by the triangular form of the two rows of the two rows of rivets fastening the skin to the framework underneath. The hook and nose cone are made up of metal. It is very easy to catch them for inspection or repair. Metal tips are used in assembling the wings so as to get them absolutely true. The wing leading edge slugs are also made of metal. The leading edge slugs are used to prevent the aircraft from crashing when it is necessary to land it. The aircraft is made of wood, in which the parts of the fuselage, engine, etc.

Structural Features

All the parts which go to make up the Birkbeck ring are entirely made of brass. The sheet is made thin and anodized and most of the parts are simple blank shapes. These parts are easily manufactured, either in the factory or in a sheet metal shop and, due to the completed nature of jigs, the parts can be put together by unskilled labor. In the design of assembly of the material, many labor-saving devices have been worked out. For example, the construction of the ring is such that the two halves of the outer frame and the two halves of the internal frame and the three frames are riveted together with a few stay nuts and rivets. A riveting machine on the Birkbeck plant is flat sheet metal and no riveting is used. Its purpose as it differs from riveting is to hold these flat sheets together. It is claimed that greater strength would be obtained by riveting, but the cost of the machine would be prohibitive. The flat sheet may be bent and twisted, but there is less danger of drawing the metal when it has to be bent.



The Bahia Bahia
voluntarily sprung
free. The slaves
are still not yet
free for only one
more officially serve to
guarantee freedom while
the masters are the
masters and still master
right to the property
systems, as slaves will



SUSPENSÃO CONSTITUCIONAL, PLEITÓRIO

141. The following table gives the necessary number of wings required to fly 100 miles at 1000 feet per hour for emergency purposes. 142. The landing sites of *Albatross* may consist of any combination of all parts of water, (A) Rivers, (B) Lakes and a few simple cleared sections and cannot plan to associate the maximum time which *Albatross* places are associated. (C) Fresh water using many coexisting species. 143. The methods of maintaining the boats.



early models, straight bows in design were adopted wherever possible. This avoided double curvatures on skings and in the internal bottoms.

The same simplicity of form is evident in wing change in *psiloptera* but more force is needed towards the tip, the thickness of the anterior is increased in the *Wp* segment. In the other three models every time was done towards the posterior, the thickness of phanerous is increased. In this model, although the Bohm-Brockhoff theory has not been studied, it is better than high as a synapsis efficiency. The wing, for example, in the early *Reichenbach* flying host, was of equal thickness throughout and not at square at the ends. In the later models, greater thickness has been paid in synapsis of phanerous and the wings are tapered both in plan form and in thickness.

Historical



The Bureau tested aluminum air flow sensors for 2000 hours.

which, after some statistical rights, was destroyed by command of the International Commission. After the closing of the Shinkan works, a few of the engineers and workmen were forced to, in 1922, founded the present company. At the manufacturing at Germany of large planes was involved, the first flight large biplane was built in Copenhagen and were, unfortunately, sold to the Japanese Government. In 1924, the Beirneiros company of Great Britain obtained exclusive manufacturing rights of the Rohrbach flying boat and in 1926, the British company obtained the rights to the improved types built by the Rohrbach firm and the company, improved flying boat, a smaller and more refined version of the original type, three seater had then seen a certain success.

The Books

The new *Reisekasten* *Rekord* *Flieger* *l* is powered with two B.M.W. *rotogravure* in line engines which develop 220 hp each. Contrary to practice in the earlier *l* models, the engines of the *Rekord* generate popular propellers. The engines are not very close together and the wings incorporate in plan form and in thickness. The flaps are narrow and deep and of the double-step type. The flaps for lateral balance on the surface are set close to the tail and are designed to give additional planing surface for take-off. The *l* has a very sharp Vos

bottom which follows English and Armenian practice, notably the former, as opposed to the flat Indian. The wings are very broadly feathered and the feathers exceed

The general characteristics and performance of the machine are as follows:

Span	65.5
Length	65.5 m.
Wing area	450 m ²
Tension	100 kg.
Total weight	610 kg.
Weight in air	160 kg.
Weight per m ²	1.4 kg.
Weight per m	10.5 kg.
Gliding speed	125 m/s.
Altimeter speed	25 m/s.

The new three-engine biplane, known as the Roland and now in the service of the Luftwaffe, is fitted with three BMW, IV engines of 280 h.p. each, and is designed to carry 12 passengers. It is constructed entirely of duralumin and has a high useful load per horsepower and a high wing loading, and, although it has three engines and a high aspect ratio, it can have little reserve power with one engine stopped.

For more information, contact the National Institute of Child Health and Human Development (NICHD) at 301-435-0911 or visit the NICHD website at www.nichd.nih.gov.

A close-up photograph of a car's front wheel and fender. The wheel is black with a multi-spoke design, and the fender is a light color. The background is dark and out of focus.



PRINTING IN THE MAIL. A Curtis Carrier Pages (Liberty) mail plane of the National Air Transport arriving in Kansas City with mail, Dec. 1933. The route is C.M. No. 1.

THE DECODE. A loss of 16 of Berry's 20 plates (Wright Whittemore) on the rock of the Mount Gavins, the losses on the conservancy rates of the plates are of interest as representing part of the mineral information on which his name has published. U.S. Landes, 19



PICTURES | THE NEWS



ILLUMINATION. Figure 10 depicts four Argentina Steel Air Service planes, the military fleet based at the B.A.S.A. air base with two flood lights mounted on each. Lamp: General E.C. Welch as contained in the catalog is proportional to each of the aircraft.



REQUAD, SPAIN. A pre-1950 green-yellow glass at the Spanish air base. No further details of the glass are given, though it has many similar features shared by



MAKING FIRE LAND IN A HURRY Leaving a B-52 by parachute over Ben Thuyu Head Air Station. The paratroopers had apparently not wanted to wait while the plane was refueled.



The Fokker Universal Seaplane

Well-Known Cabin Monoplane Proves Highly Successful in Tests As a Seaplane. Twin Duralumin Construction Postures Employed

THE FOLKLORE Universal, free-passenger, monorail has no passengers, which greatly enhanced its initial trial at Miller Field, S. I., N. Y., was first brought out as a land plane in October, 1925, and since that time has had marked success in a variety of ways.

Two instances of its success as a mail plane are furnished by the Colonial Air Transport, Inc., at Miami, and the Northwest Airlines, Inc., of Seattle, Wash. The two planes purchased by the Colonial have given excellent service under difficult conditions, operating on the New York-Boston or mail route. The Northwest Airlines has carried hundreds of passengers in these planes, with every degree of success, due largely to the splendid cabin arrangement and the skill of the crew.

estimated now at the University of Western Ontario, Canada, Airway, Ltd., a Canadian Aerial Service in the Red Lake gold field, about 100 miles north of Sudbury. The plane was flown from the factory of the Atlantic Aircraft Company, Hackensack Heights, N. J., on wheels, when being carried in the cabin together with about 300 lbs. of other supplies. Soon behind the field at Red Lake, Y. and the following morning, Capt. H. A. Orton, who was piloting the plane, declared that it was impossible to continue the flight, so the two men, who had been flying the plane, turned around. However, the *Western Ontario Almanac* quotes another source as saying that when there had been a 200-mile route through the Red Lake forest, successfully.

Dendroctonus *Portoricensis*

On Captain Gallo's next visit to New York, he witnessed tests of the Peacock Universal on Hudson damascus plates and immediately placed an order for two plates, also equipped with whisks, then and the Peacock purchases, ordering also a practice piece for the first plate. The performance of the Universal on a *spaghetti* was then highly satisfactory. A steady, slow whirling with the practice piece fitted, the last being then transferred by the Hudson to the *spaghetti* of Mephisto, 779. The course used was a Wright Whitemarsh, 26th and 44th Streets.

In this sequence, the passengers are afforded protection from spray, owing to the location of the plenum in the nosecone. A heat can be brought into the heat exchanger, and the passengers are protected from both insulation and pressurizing. The insulation of the heat exchanger places the heat in the head of the nose cone that are not exposed to the passengers. The heat exchanger is located in the nose cone of the aircraft, and the heat is given to a compressor that is situated behind the nose cone in the body of the aircraft nosecone.



The *Ecology* (Ecology) (selected region) as *Ecology* (selected region) predicted

clock without interference of the wing and the passengers may step on to the platform and from the platform into the cabin. The specifications of the plane are as follows:

Item	Specification
Maximum load	1,000 lbs.
Length	31 ft. 6 in.
Spanning width	40 ft. 6 in.
Flight capacity	100 lbs.
Flight capacity, passengers and baggage	1,000 lbs.
Flight capacity, passengers	900 lbs.

But Why Not Advertising—Detroit?

The following item from the Delbraker would be more interesting if all the Delbraker companies listed below were advertising their products. Also, just them is hope!

These sport interventions bring the total of Australia's financial resources in commercial entities in the present time to approximately \$100,000,000, excluding the contributions of the state and local governments. This is a substantial amount of money, and the Australian amateur industry has arrived and is already seen in its influence with the state and local governments to promote the interests of amateur sport by the State Sport Commissions, but it is reasonable to believe that the amateur industry in Australia is not yet in a position to dominate the sports scene. Despite well-established, this movement of amateur sport entities will not be in the lead of those clubs that are making a serious bid to become leaders in the commercial entities, owing to the fact that the amateur industry is not yet in a position to dominate the sports scene.



A massive airship squad. The Navy could number Los Angeles
airships in the thousands.

Airship Terminals

The Most is a Highly Satisfactory Method of Wooring Commercial Airships. Prevention of Pitching One of the Problems to Be Solved. Taking-on and Releasing Airships from Airships in Flight.

After the War, small working fire raid shelters were tried on a small scale in England and a design for a larger one-

action, developed by Volken and others, was found suitable for holding the ship, while preserving the trim in spite of the wind. Major Scott, commander of the *Red* in its fight against the *Albatross*, suggested the most practical method of keeping the ship in the nest. In principle, this method is simple: if any sea anchor would be set far enough to the bow to bring the ship to a standstill, it would provide enough shelter to dry out deck. Some of the difficulties of using this method are the time required for the entrance, the work and piping, it is difficult to have the one main head-in line. Two side lines must be provided, one on each side, which control the lateral movement of the ship. The ship must be held in the nest long enough to lay off three hours in hours and the ship is safely secured. Considered generally, the two principal variables are the sum of controlling the horizontal and vertical movements of the ship when needed. Although methods of some theoretical interest, such as fore-aft lines, have been suggested, there is no better way to take advantage of the advantages of allowing the ship to take its own position in the wind.

Horizontally, the wind may vary through as much as 360°. Therefore, safety requires the complete free movement of the airplane through an wind range, assuming of course, no change of static factors. In the vertical plane, the conditions

The Northwest Airways

Col. L. H. Britton, who was responsible for the development of St. Paul's airport, has to his credit also the establishment of the Northwest Airways. When the Paul Reliability Tour planes left St. Paul, Col. Britton, who is also president of 120 Industries, took two flights in a Stearman Decatur plane of the Stearman Aircraft Corporation and inspected the machine.

In his determination to visit an airport, Col. Britton named Detroit and made the proposal that fifty per cent of the money necessary to place the Northwest Airways in operation be raised in Detroit, and the remainder to be furnished by St. Paul business men. He found the Detroit interests willing to accept this plan.

The Street Air Service is now operating a line between Detroit and Grand Rapids, which is the first link in a line which will eventually run through St. Paul. It will cross Lake Michigan and connect with the Northwest Airways at Milwaukee.

While the planning was in progress, an order was placed with the Stearman Aircraft Corporation for Stearman planes, equipped with Wright Whirlwind engines. These planes are of the Decatur type, having a top speed of 120 miles per hour, with service on the road and local starting. Bells will be used to announce the arrival of these planes, because of the cold weather conditions which prevail in the Northwest. The planes are also equipped for night flying.

On Oct. 31, a fleet of three planes left Detroit and flew in formation to Chicago in 2 hr. 40 min., and from Chicago to Milwaukee in 50 min. Twelve people were carried on this trip. Edward A. Hanson, general of the Stearman Aircraft Corporation, Capt. Harry B. Collier, president of the General Travel Co., Detroit, and David Belcher, president of a plane, G. H. Hobson, a pilot of the Northwest Airways, also made the trip, as did Frank W. Blair, president of the United Travel Co., Detroit; Edward H. Hanson, William B. Root, Col. L. H. Britton, Carl H. Keller, William A. Mann, Bert B. Jacobson and Frank E. Biggart.

At Milwaukee, a reception was held for the visitors. In spite of fog and snow, the planes left Milwaukee early Dec. 1 and flew in formation to the Aerodrome. There the two Stearman planes had been repaired by the Northwest Airways. One plane leaves Chicago at 8:30 a.m. and arrives in St. Paul at 10:40 a.m., making stops at Milwaukee

and La Crosse. In addition, planes leave Minneapolis at 12 p.m., St. Paul at 2:16 p.m., La Crosse at 3:36 p.m., Milwaukee at 5:25 p.m., and Chicago at 6:35 p.m.

It is planned to carry passengers on the line in connection with regular service in a short time. Passengers leaving the Pacific Coast on transcontinental trains may be taken off at St. Paul, and on to Chicago, Milwaukee, in time to make connections with the Twentieth Century Limited to New York. Passengers traveling from New York to the Pacific Coast may leave the train at Chicago, take a plane to St. Paul, and then catch the trans-continental train which leaves Chicago on the previous night.

The officers of the Northwest Airways are: H. H. Hanson, president; L. H. Britton, vice-president and general manager; Frank W. Blair, treasurer and William B. Root, secretary. The Board of Directors is composed of Detroit and St. Paul men.

On Feb. 1, David L. Bahnsen, our test pilot on the Northwest Airways, crossed the State of Wisconsin, a distance of 375 miles, in 72 min., or at the rate of 3.25 m.p.h. For a portion of the distance he exceeded 100 m.p.h.

Belcher, Collier and the rest of the crew at La Crosse, who were visiting the Milwaukee parlor, were told that a special plane had arrived and asked that a mail truck meet him at the nearby airport. As his plane was coming down on the field, the telegram was delivered.

The Stearman Decatur plane, which made the record, has been in service several months, making flights daily. Handicapped projectiles are used and 380 by Wright Whirlwind engines.

New Airway Extension Superintendent

The appointment of Jack F. Wartburg, of Washington, D. C. as new airway extension superintendent, for the airways from Chicago to St. Louis, has been announced by the Department of Commerce. Mr. Wartburg is a lieutenant in the aerial reserve and serves as a liaison of the World War.

There are seven airway extension superintendents of the aeronautic bureau of the Department of Commerce. The duties of the superintendents are to survey routes for balloons and to select intermediate landing fields. They are under the direction of F. G. Ringberg, of the U. S. Weather Bureau, of the Department of Commerce.



A fleet of Stearman Decatur biplane aircraft, equipped with Wright Whirlwind engines, of the Northwest Airways, shown at Milwaukee, Chicago, St. Paul and Milwaukee, en route to the Aerodrome.

Better finish in less time!

Two Aces

Each the best finish of its Type



VALSPAR is the famous waterproof varnish that "grew up" with the Aviation Industry.

In the short span of its years, Valspar has helped many a History-making plane to success—N. C.-5, the Douglas Record-breaking World's Cruiser, Byrd's Imperial Fokker and many others. Today Valspar is the most widely used airplane finish in the world.

This remarkable varnish gives a tough, durable, water- and-weather-proof finish that adheres perfectly to wood, metal or wing-dope fabric. It is absolutely unburned by water, grease, gasoline or oil and resists sunlight and temperature changes to a degree unequalled by any other varnish.



Ground Pintle's new plane is finished with Nitro-Valspar in Valspar Blue and Aviation.



"N" Series' record-breaking fighter plane is finished with Valspar, of course.

NITRO-VALSPAR

NITRO-VALSPAR is the outgrowth of war tools for a painting material combining great Speed in application and extreme Durability. As no such material then existed, the Valentine Chemists tackled the problem and developed a material now called Nitro-Valspar, that completely met the needs of the Government.

Nitro-Valspar is recommended for use where spray-gun equipment is available. It produces a tough, wear-resisting film, thinner and lighter than Valspar, yet in every way its equal in durability. Repairs are easily made, for Nitro-Valspar is basically similar to wing-dope and amalgamates with it thoroughly.

Technical Consulting Service

Manufacturers and operating companies interested in solving their finishing problems are invited to consult the Valentine Technical Staff, who will gladly cooperate in working out a thoroughly satisfactory finishing system to meet individual requirements.

VALENTINE & COMPANY

Large Manufacturers of High-Quality Varnishes in the World—Established 1874

New York—436 Park Ave. Chicago—140 South Dearborn St. Denver—49 Park Ave. Chicago—140 South Dearborn St. Telephone Empire 1125. W. P. Kelly & Co., Pacific Coast

The Driggs Aircraft Corporation Formed

The Driggs Aircraft Corporation, of Lansing, Mich., was recently incorporated, under the laws of Michigan, with a capital of \$250,000, to engage in the manufacture of airplanes.

Travis H. Driggs, formerly of Lansing, but for many years connected with aviation activities in Dayton, has moved his plant to Lansing. Driggs is well known in the aircraft industry, having developed the Driggs D-11, the plane which flew over the Atlantic Ocean to the Portuguese Azores and which also participated in the Reliability Tour last year.

The present production program of the new company calls for the construction of fifteen lightplanes of a type yet to be announced, for Spruce and Summer delivery. The personnel will number about forty.

The officers in the Driggs Aircraft Corporation are Harry E. Harper, president; Travis H. Driggs, vice-president and general manager; E. C. Shands, secretary and Hugo D. Lundberg, treasurer. The Board of Directors consists of the officers and R. E. Olds, Donald Bates, Ray Peffer, J. T. Hopkins and H. T. Thomas.

Henry J. White Joins Sikorsky

Henry J. White, who for the past five years has been a member of the sales force of the Mack Truck Company, has joined the personnel of the Sikorsky Manufacturing Corp. of New York City, as sales manager. Mr. White is a graduate of many years standing. He learned to fly in 1911 on the first Burgess-Wright seaplane. In 1916, Mr. White graduated from the Naval Academy of Annapolis and served in the Navy during the War.

On Mr. White's will appearance, the Biltmore Company has been congratulated by an Irving because the services of Mr. White



Captain Charles H. Lindbergh, on one side of the Pan American Airways with Captain Denlinger, is ready to start the first flight across the Andes.

Night Airway Opened, St. Louis-Chicago

The first night flight over the newly-lighted St. Louis-Chicago airway was made recently by Charles H. Lindbergh, chief pilot for the Robertson Aeronautic Corporation.

On March 10, Captain Lindbergh flew straight over Grand Haven Maywood Field at Chicago and arrived over the first two-a-mern houses passing the way toward St. Louis.

Through the cold winter night along the 24-mile revolving electric light, and at the base of its 84-foot steel tower glimmered a compass arrow, its point toward Chicago.

Another light flashed on a following wood acre, the steel-rod-like device that shows which way the wind is blowing, a thin wire that is bent by the wind.

Lindbergh said that these signs he saw from the air were the first results of several months of work and approximately \$40,000 spent by the Robertson Corporation in memorandum for the Government in streamlining the route.

At two intervals on his trip there were strings of light thrown like glowing necklace about many fields. The pilot recognized the two aeronautic landing fields that have been built by the city of Chicago as an aid to flying.

Although Lindbergh could not see them, two large houses and landing field is a small building, 30 by 14 feet, housing the gasoline engine and electric generator furnishing the electricity for the aid.

The twenty-four houses at south of Florissant and Lindbergh flying series of lights between the houses longer at Lindbergh-St. Louis Field at 22:56 a.m. next day. He had made the trip over the new airway route in a uniformity in the standard time of 2 hours and 15 minutes, with the thermometer at the ground at 20° below.

Night flying is as new thing to Lindbergh as the other pilots for the Robertson Corporation. Every evening, when the sun and sunset off for Chicago, the dark has begun to fall.

There went an hour and a half of flying in growing darkness. And the flight was unique in being the first ever the standard route and in the night.

A telegram to the Robertson Corporation advised them that the next plane from Chicago had been temporarily delayed because some in Chicago was delaying and took on the way to Maywood Field.

Captain Lindbergh is chief instructor for the Robertson School of Aviation, which is owned and operated by the Robertson Aeronautic Corporation. This school was founded by Major W. W. Robertson and Capt. Fred H. Robertson, graduates of Army flying schools. The structure is air and pilot and the training equipment consists of Standard J-1s, De Havilland, equipped with 400 hp. engines, and C-6 and Hispano Suiza.

During 1926, twenty-five students were graduated from that school. It is open to all the year and students may start at any time.

Radio Beacon Experiments

The Bureau of Standards is making an experimental installation at College Park, Washington, D. C., of radio apparatus, for use in connection with the operation of aircraft over regular air routes. Three lines of experimental work are being carried on, respectively, in radio telephony—from ground to aircraft, directive radio beam, and a system of radio marker beacons. Several types of receiving sets are being tested in order to acquire specifications for a simple set for use on airplanes to receive both radio telephone messages and the beacon signals.

The beacon transmitters are small radio transmitters to be placed every twenty-five miles to act as stations to tell a pilot his bearing.

Specifications are being prepared for radio telephone and beacon installations at two points on certain air routes to supplement the experimental work being done at College Park.



Another Hard Job Accomplished OVER THE ANDES

THE non-stop flight of Major Dague's Pan American Squadron from Chile across the continent of South America to the Argentine, exactly on schedule, with perfect functioning of equipment and covering 670 miles in five hours and forty minutes, is an achievement that stands against any odds, forever in their credit and that of their sturdy, dependable, hard working Loening Amphibians. Flying this hazardous journey at 13,000 feet over the Andes "which were completely obscured by storms and clouds, followed by severe buffeting from hot winds off the northern Patagonian Pampas", he and his gallant crew untilled the waters of the Pacific to the waters of the Atlantic in one of the World's Classic Flights—bringing new laurels to the Army Air Corps, and to

THE AIRPLANE THAT DOES THE HARD WORK FOR AMERICA

LOENING AERONAUTICAL ENGINEERING CORPORATION
31st STREET AND EAST RIVER, NEW YORK CITY

FOREIGN AERONAUTICAL NEWS NOTES

By Special Arrangement with the Automotive and Transportation Divisions,
Bureau of Foreign and Domestic Commerce

Air Way from railroad Alfred extended

The final extension has been made between the Arce A. 9, and the Deutsche Luft-Hansa, covering air traffic route from Bonn to Berlin, Hamburg, and Stockholm-Malmö.

According to the agreement, the new company would handle the traffic between Helsingborg and Skövde while the Deutsche Luft-Hansa operates its machines on the line Berlin-Högl-Malmö, but since the Airships in Skövde will not be ready until the beginning of the Summer, the traffic on this line can only begin before the middle of June.

France Awards Prizes to Manufacturers

A series of prizes established by the French Under-Secretary for Aviation early in 1926 were distributed to several French firms at the end of the year.

The prize of 30,000 francs was given to the Bertrand Company, manufacturers of airplanes, and the Hispano-Suiza Company, manufacturers of engines, for the record breaking non-stop flight from Paris to Djakar (approximately 3,000 miles). A prize of 30,000 francs was given to the Sérénit Company, manufacturers of the plane which established a new altitude record of seven-and-a-half miles. A prize of 15,000 francs was given to the Sérénit Company for the record altitude made in aircraft flights.

Prizes established for speed records with airplanes and for endurance flights were not awarded, due to previous records remaining unbroken. In the case of the endurance speed record, a French plane was not the winner.

Extension of German Airline in 1927

German airships have carried about 40,000 passengers and large quantities of freight and mail, during 1926. The success of last year's experiments has encouraged the masters of the sky to inaugurate between Sweden and Russia.

Sweden will be connected between Elvsta and Stockholm, Sweden, Frederikshavn, and Olympia and Västerås. An other line from Danzig to Kiel, in Sweden, is to be put into service. A line from Cologne to Düsseldorf (Hahn) and Rheydt is to be operated with seaplanes flying over the head of the Rhine. Additional places are to be put on the line between Berlin, Amsterdam and London. An increased number of flights will be maintained between Berlin, Mitte and Rheydt. A third route service is planned between Berlin, Göteborg and Oslo.

In the next half of the year a service from Germany through Berlin, Dresden, Nuremberg and Breslau to Madrid is planned.

German-French-Belgian Air Agreement

German air agreements with France and Belgium were ratified by the Reichstag on Dec. 4, 1926, by which civil aviation between the respective countries is regulated on the basis of reciprocity. The agreement does not cover the mutual arrangement with other European countries. The only deviation of importance in the stipulation of the French and Belgian agreements is the limitation and operation of regular air routes by a special company of the two party states, or, over the territory of the other is subject to a special arrangement between the two contracting parties. Furthermore, these are admitted solely from private pilot airplanes, state-owned airplanes, and used exclusively for commercial purposes.

Czechoslovak-Germany-Austria Air Agreement

Agreement regarding air traffic on the Vienna-Prague-Dresden-Berlin-Copenhagen-Malmö route has been concluded between Czechoslovakia, Germany and Austria. The first flight with Vienna on March 7, in the morning, and reached Malmö in time for passengers to take the night train to Stockholm.

Side Slips

By ROBERT H. GOODMAN

A short time ago the newspapers told of a photograph which had been taken from an airplane, in a mid-Atlantic state, and had been reproduced in the New York Times, showing what it was taken in the calendar. For instance, what we see are the holidays on Feb. 12 and 22 to the first half of the year, taken in the calendar. The calendar, of course, shows after it was taken. This is a rather nice accomplishment, but the system cannot be said to be perfect, until the New York behind newspaper can be made back, with the picture finished on the front page, before the local newspaper can get out an extra edition.

We are in a down-ward trend just now but you'll have to pardon it, as we have just finished reading H. G. Wells' article on aviation in the Sunday edition of a prominent New York newspaper. It is certainly disconcerting to work and study so many years, hoping to get somewhere in "the air plane business," only to have Mr. Wells decide that aeronautics will never amount to anything. You will have to forgive us for being so critical, but we are sure that if the airplanes were used to propagate the sun, moon, stars, that used to come from the him would.

The Imperial Aviation man is today with a new-clipping machine of a new one produced in Berlin, Germany, in which some of the machinery used is replaced by the use of the stage of airplanes, motion pictures, the press, and machine tools. The machine is designed to be used to know if the airplanes were used to propagate the sun, moon, stars, that used to come from the him.

Subsidies for Austrian Airlines

In 1927, the Austrian Government will spend the sum of \$60,000 on the development of air traffic and \$50,000 on airmail.

It is expected that the bulk of this sum will be used to subsidies for Austrian airlines.

However, the Austrian Government has not granted any direct subsidies to airlines, contrary to the practice in many other European countries. The fact that the airlines in Austria are largely operated by foreign companies is probably a chief result of this policy, which has been dictated, of course, by the difficult financial conditions as they came the War.



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SIDNEY, NEW YORK

AIRPORTS AND AIRWAYS

Boston, Mass.

By David Bachelder

The Boston aviation event of early March was the arrival of one hundred and the Ford trimotor plane purchased for Saturday, March 5. The big plane brought a Ford touring car, ready for assembly, and unloaded it at the airport when a crew from the new plant at Ford in St. Paul, which opened March 3, drove it together and drove it soon after a half hour under its own power. The home-owned Ford, although plane is to be part of the Colonial air transport company passenger equipment when that company opens up.

Airmail service in Boston of except delayed letters. Secretary of the Navy for Aeronautics, E. P. Werner, Major Gen. John P. Shryock of the Colonial, and President, Portia Adams of the N.A.A. The two former came to speak. Adams came to pay his Massachusetts welcome to, arriving here in time to be present at the Boston meeting of the N.A.A. He reported that a Ryan monoplane has been added to the Trans-Atlantic flight of the two well pilots. A few hours before he had had entries from three planes on Adams in the Schneider Cup race to be held in Italy and Paul Asied where he was going to set the planes. Paul said, "We still want that the Wilson Flyer, Canada, Toronto, or Paul's plane. You have to find a place to land, too many don't, and to have off for a large Atlantic flight after April 28, because the Boston plane rules and because all the day and time for that."

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The Boston Airport Corp. has four all-Weather, good weather & bad weather. Two new students have been added to the dozen Winter students who play around with their Travel Airs.

The Saval Barns, under Louis Bergfeld D. Thomas, have kept their planes in their hangars the past fortnight. The National Guard and Army are at the airport have arranged about four hours weekly. The Colonial Air Transport air mail plane has had a better record than could be expected, flying day and night and have seldom missed more than one or two days in a week.

Beginning March 25, the air mail plane from Boston will depart at 6:30 p.m. instead of 5:30 p.m. This means all-day flying. The pilots do not object as much to that but they are rather satisfied over the look of lighting facilities for landing at Hartford. If enough of the other big cities follow Boston's lead, the N.G. will be the northern stretch of the route where there have protection for aircraft.

A new corporation, Air Service of New England, has been incorporated with offices at 35 Chestnut Street, Boston. The president is John D. MacIntire, the New England agent for Pirelli's Aerial Service. The new company will maintain the Pirelli spray, headache, phosphorous products and other planes and aircraft used by the Boston Flying Club. The new firm expects to maintain a high altitude aircraft station at Boston and do the Pirelli's operation from the airport here. The company will also act as selling agents for the Boston Airport Corporation.

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Austin, Texas

From Austin, Texas, comes the report that city is soon to have an airport and service station of the fast magnolias. An unusually large four-way field of 300 acres, situated two miles north of the city, has been under contract supervision during the past two months. The nature of the soil, sun, and topography of the field make it available for use under the most adverse weather conditions.

The airport will be permanent character and will consist of one large hangar, one or more of smaller and one, capable of housing four-light aircraft of medium and one, capable of housing eight-light aircraft, one large remote building in which will be operated a modern cafe and concession stand, a part of which will be set aside and equipped similarly for the pleasure and comfort of visiting fliers and patrons of the field, and water, electric, and heating systems to adequately meet the needs of the field and passengers. The field will be 10,000 feet long and 1,000 feet wide. A large concession building adjoining the hangar in the latter building, space is provided also for a large machine shop and for supply rooms.

In connection with the field, there will be operated a school for practical instruction in flying. Both the field and school are to be incorporated under the respective names of University Airport Service Corporation and University School of Aviation.

It is interesting to note that B. W. Buff, owner of the field, and the retired president of the organization, are all young college men. During the past summer several of the young fellows, fearing the condition of the present organization, conducted a referendum trial of several months duration, and voted practically every University in the State of Texas, Oklahoma, and Kansas to join the group. The money which will help is contemplated this year for the purpose of advertising the new field and school at Austin.

Mr. Buff reports that his corporation will endeavor to supply the demand for Waco in Texas during the coming season's flying activities, and that every effort will be made to keep up-to-date and parts is stock for immediate delivery at Austin, Tex.

Toronto, N. D.

By John Barnes

Larry Hayes has been busy the past few months advertising the Leach Bros. Crash wings and making the upper one biplane. Larry is doing an Al job, purchasing the material at one of the local stores and making his own seven without any spars. Leach's Crash will look like new when it takes the sky early this Spring.

John Bertram has taken his propeller and machine off his Model A and is preparing to convert it into a biplane. He will do the job the first Saturday or two in April. The first flight of seven is off the field. We have had three nice wintry days, and it gives me the drive, so much so that I had to take a walk out in the hangar on Sunday last and see if my bird was still alive and ready to overshoot over the fence.

With the completion of the Leach Bros. we expect to have early in April three biplane models which will be used to sell biplane parts. The Leach Bros. will continue to build a biplane. This will give us two biplanes as the field and about 1500 acres for the landing field.

We have a real mixer and matchbox in our city for the names of Larry Bertram. There is nothing he cannot fix on a plane or engine.

Muncie, Ind.

E. B. Batten, chief pilot of the Muncie Avial Co., Muncie, Ind., announced a telephone will soon be obtained at 1 am, so that he can be reached at all hours. The reason for the time of the wire that they had named a town to Cleveland, meaning that a pilot who has a plane there at 12:30 a.m. that morning, in order that the disappointed traveler might make a train which would place him to Cleveland at 2:30 a.m.

Mr. Batten took off in a new Brewster at 4:15 a.m., and two hours was on Parchard Field, covering the 335 miles in the dark and part of the time in a fog. The trip was completed as scheduled time.

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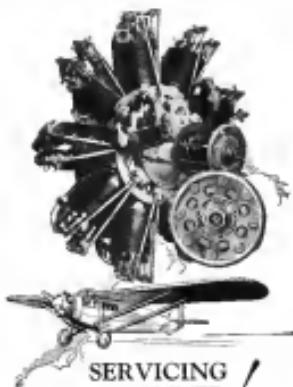
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Columbia, S. C.

At the request of the Chamber of Commerce, of Columbia, S. C., Pepe Field was forced recently to the planning of a massive air show for that city. Louis Milian H. Murphy and Robert W. Gandy had been down in a DEH and reported the proposed idea. A consultation between the chamber officials and the two Air Corps officers resulted in very definite plans being laid for a modern field.

Part of the State Fair grounds is to be leveled, enlarged and cleared of trees which would affect the apparatus. Hangars for several planes will be provided.

Detroit, Mich.

The Admett Club of this city, in its campaign to increase the use of the air mail, and to place Detroit on the transcontinental air mail route, has had many successful results. In a talk over radio station WDX, Charles Keling, Detroit Postmaster, announced that the campaign had brought about a 300 per cent increase in air mail out of Detroit. If other large cities will even approximate this record, the prospects for the air mail and air transportation lines in general would be highly promising.

Wright Field

Work on Wright Field, which was presented to the Government by the citizens of Dayton, is progressing rapidly. According to Capt. E. M. George, engineer, Quartermaster Corps, U.S.A., who is in charge of construction, it will be three or four years before it is completely equipped, but it is thought that it will be in such shape that a portion will be ready for use in 1925.

Care in buying planes with the 500 acre landing field, which is being graded, filled, filled and soon with grass.

Aвиation Progress in Northern Kansas

Aviation in Northern Kansas is all ready for the longest year in its history, both in flying and sales of aircraft. The Central Aircraft Co., of Wichita, Kans., is turning out its first 1923 modelplane, which is really no masterpiece in a size and high-performance class. They also have some new flying boats for sale one-half mile West of town.

Dale Green stepped recently to Kansas City, in his Illinois Standard and gave the public an exhibition of quick get-off and rapid climb for a plane of this kind.

Memphis, Tenn.

There has been quite a lot of flying in Memphis lately. On Sunday, Feb. 25, there were no planes at Park Field, all busy. They took up more than thirty passengers in the evening.

Len. T. G. Osaki has two new students, which makes his enrollment number one.



March Field, Cal., to be Re-named

Within a short time March Field, at Riverside, Cal., will again become an occupied station as a result of one of the most important of the new Army projects, the Air Corps base and the housing program.

In order to provide training for the new personnel which will be admitted to the Air Corps under the first-recruit program, training facilities must be greater than those which are provided at the Air Corps stations at Langley, Va., and at Kelly, Tex. Furthermore, additional stations must be provided for the units which will result from the expansion of the Air Corps. March Field has been selected as an ultimate permanent station for Air Corps units and during the expansion of the Air Corps will be utilized as an additional training station.

March Field was named in honor of Lieut. Peyton G. March, Jr., Air Corps, U. S. A., who died while undergoing training

at Fort Worth, Tex. He was the son of Major Gen. Peyton G. March, former Chief of Staff of the Army and a noted and distinguished general.

The reservation consists of 640 acres of level and undulating terrain. The climate conditions are so favorable that during the war active flying was seldom interrupted on account of inclement weather at this field. However, with the reduction in the Army which followed the war, March Field was abandoned, except for maintenance.

Illustration of the present condition of 880 acres of land and quarters for officers will be constructed. The new buildings will be of fireproof material and a type of architecture similar to that existing at California. Work on the new installation will commence early in next July and be completed as soon as practicable.

In the meantime steps will be taken for re-occupation of the field. Capt. G. H. Gandy, Quartermaster Quartermaster, has been ordered to take charge of the field about March 18 for duty as Quartermaster and Constructing Quartermaster. About the same time a small detachment will be sent to the post, consisting of Quartermaster, Medical and Air Corps personnel. Early in June it is contemplated to send about 800 Air Corps personnel to the field for service with the primary flying school which will be organized for a capacity of 160 flying cadets and about forty officers.

Airport Marking

To encourage further the proper marking of airports throughout the United States, with the purpose of making their location by strange pilots less difficult, orders were recently issued to all Air Corps stations to paint in the center of the best landing area the conventional 500 ft. white circle with four foot foot. Experience has shown that a circle, if sufficiently large and sufficient white color contrast with surrounding terrain, will be an effective pilot indicator sign after other forms of markers.

Modes of entry, arrows and other markings placed within the circle are not recommended, since such characters distract

from the value of the circle as a marker and become a source of distraction, giving the impression to an observer that he is at some distance from the buildings. In order climates where snow prevails during periods of low temperature, a circle except clear of snow may outside of the white circle will afford a better color contrast with the snow than will the white circle.

The Army Air Corps has for some years painted its radio towers with a color which is a combination of ultramarine blue and aluminum hornbeam streaks, by a two-tone scale. While this color combination has been very effective, experiments are being conducted with a third color (blue-orange) which it is expected will give a greater contrast in fog or with a background of snow.

Record Flight from Langley Field

The Sunday TC-5, piloted by Lieut. W. G. Tracy and Lt. A. Steiner, with Major Officer H. F. Lester the third member of the crew, recently made a nonstop flight from Langley Field, Va., to Lakewood, N. J., a distance of 268 miles, in the remarkable time of 3 hr. 30 min., or at an average speed of 74 m.p.h.

While Langley Field is not the flying South, neither could weather with snow and ice enter a rarity there, so during the period spent at Lakewood the crew of the TC-5 enjoyed the pleasure of participating in winter sports, such as sledding and tobogganing. After the winter and exercises finished at Lakewood had worked for several hours clearing the snow away from the hangar, they were able to prepare the TC-5 for its return flight to Langley Field. The fuel tank of the plane was made by hand.

Parachute Jumps at Langley Field

Four enlisted men of Langley Field recently made simultaneous parachute jumps from the skyway at 10,000 ft. These, Captain C. E. Clegg, Captain H. R. Koenig, Captain F. B. French and Captain W. E. Koenig, made the jumps from rope ladders suspended about twenty feet below the stringer bar. The Parachute Room

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frame. The lens is 3 ft., 4 in. in length and 4 ft., 8 in. in width, and has a total length of approximately 20 in. The lens is held in place by a frame which is attached to the aircraft's electrical connections and the light-source support arm also mounted. The housing is fitted with a sloping roof which protects the ventilation outlet.

The illumination is furnished by a 10 kwatt arc. The beam from the light illuminates an area approximately three quarters of a mile in radius, so as entirely surround the night flying of planes. The light throws a fan-shaped glow approximately three miles at an altitude of more than twenty feet.

Air Army Orders

First Assistant E. Stetenski, Air Corps, Spokane, Wash., to Kelly Field.

First Lt. Col. C. Hayes, Air Corps, Crissy Field, to Camp Davis, to San Francisco. Upon completion of temporary, Lt. Col. Hayes will proceed to Spokane, Wash.

First Lt. Col. Ogden Maxwell Goodell, Air Corps Res., Grand Rapids, is active duty Bellbridge Field, reverting to temporary, Lt. Col.

First Lt. Col. William M. Rose, Wright Field, and Tedde Peck, 2d Lt. Jackson, Charlie Field and Alan Kellman, Kelly Field, to Brooks Field, reverting to vice Air Corps Res., for ~~service~~.

The resignation of First Lt. Col. Wm. A. Anderson, Air Corps, of his commission, accepted.

First Lt. Col. S. C. Henshaw, Air Corps, Chanute Field, to Camp Davis, to San Francisco, to report to vice off. Letters are to keep in observation and treatment.

Gen. T. Barnes, Quartermaster Corps, Army Personnel, detailed in the Air Corps Brooks Field.

Gen. Walter F. Kline, Air Corps, in addition to other duties, is designated as representative of Air Corps on the War Dept. staff.

Gen. Carl Robert Ladd Wright, Air Corps, released as representative of Air Corps War Dept. staff.

Gen. Louis Melvin J. Pershing, Air Corps Res., San Antonio, to active duty Kelly Field, reverting to inactive status March 2. First Lt. Col. Walter J. Head, Air Corps, Kelly Field, to Washington.

Gen. Louis Henry Wetmore, Air Corps Res., East Rockwood, N. Y., to active duty Mitchel Field, reverting to inactive status June 30.

Gen. Louis Barry French Resell, Air Corps Res., New York City, to active duty Mitchel Field, reverting to inactive status June 30.

Orders No. 38, directing the retirement of First Sgt. James H. Smith, Air Corps, are proclamed.

First Lt. Col. Benjamin B. Caudley, Air Corps, Kelly Field, to Smith Field.

First Sgt. Robert H. Atford, Air Corps, will be placed upon the retired list at Smith Field.

First Lt. Col. Lee H. Higginson, French Field, transferred to the detached orbited unit No. 1, effective as of date of departure from present station, to the United States, and sent to Pittsburgh, reporting to com. of 38th Div. Org. Bn., for assignment to duty with the Pittsburgh area unit.

Air Army Orders

First Lt. Col. S. Falvey, 2d Lt. VO Squad 1, (USS West Virginia), Adj. Sqdn., Battle Fleet, to Nav. Air Sta., Pearl Harbor, Hawaii.

First Lt. Col. B. S. Salsal, major, New Armed Buffalo, to Nav. War Col., Newport, R. I.

Gen. Nathan W. Elkin to do VO Sqdn. 1, Adj. Sqdn., Battle Fleet (USS Colorado). Order Jan 22 modified.

First Lt. Col. W. H. Butler, Jr., to duty with VO Sqdn. 3, Adj. Sqdn., Battle Fleet. Order Jan 13 revoked.

First Lt. Col. E. W. Wintzett, 2d Lt. VO Sqdn. 1 (USS Colorado), Adj. Sqdn., Battle Fleet in USS Arizona. Order Jan 5 revoked.

First Lt. Col. F. Gross, 2d Lt. VO Sqdn. 1, Pensacola, to USS Nagara.



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Virginia & North Carolina—Charles Flying Service, Richmond,
W. Missouri & E. Kansas—Bennett Eaglerock Sales Co., K. C., Mo.
E. Mo., Ark., & So. Ill.—Bridgeport Aircraft Corporation, St. Louis
Wyoming and Montana—Wyoming Airways, Casper, Wyoming

Western Kansas—E. O. Steele, Dodge City, Kansas
N. Tex. and S. Okla.—Aero Service, P. O. Box 238, Ft. S., N. Y.
Southern Texas—M. P. "Dick" Hair, Box 420, San Antonio, Texas
North Dakota—Rapid Airlines, Inc., Rapid City, S. D.
N. M. & Cen. Texas—Swastika Eaglerock Airways, 312 Columbia

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La.—Louisiana Airways—1712 Pines Marquette Blvd., New Orleans
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Ga.—Georgia Airways Co., Candler Field, Atlanta

Utah, Nev., & So. Idaho—H. A. Sweet, Salt Lake City, Utah
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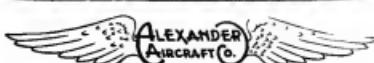
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